



INHIBITION OF NONINACTIVATING Na CHANNELS OF MAMMALIAN
OPTIC NERVE AS A MEANS OF PREVENTING OPTIC NERVE
DEGENERATION ASSOCIATED WITH GLAUCOMA

5 Abstract of the Invention

A method and composition for altering a plausible sequence of pathological events in retinal ganglion cells associated with glaucoma, the sequence including membrane
10 depolarization, influx of millimolar amounts of Na^+ via non-inactivating Na^+ channels, and the lethal elevation of cell Ca^{2+} due to reversal of the $\text{Na}^+/\text{Ca}^{2+}$ exchanger. The method includes blocking, by administration of a selected composition, of associated, non-inactivating Na^+ channels in
15 retinal ganglion cells in order to limit Na^+/Ca^+ exchange in the retinal ganglion cells and prevent buildup of the Ca^{2+} level in the retinal ganglion cells to a lethal level. The results in a method of preventing retinal ganglion cell death, associated with glaucoma, by administering to the
20 optic nerve of a mammal, a compound which blocks the non-inactivating sodium ion channels of the optic nerve. Alternately, said invention relates to a method of preventing optic retinal ganglion cell death in a human by administering to the retinal ganglion cells of said human a
25 compound which blocks the non-inactivating sodium ion channel of the retinal ganglion cells.